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ABSTRACT

The interactive mechanism of the Internet allows learners to interact with teachers, other learners, and content while it facilitates teachers to interact not only with learners but also with other teachers who teach similar or related courses and conduct online teaching.This study analyzes teaching strategies for planning collaborative learning and teaching through a case study of online project-based learning in inter-universities. The study also examines the degree of students' learning experience, collaboration and participation with their expectancy and satisfaction on the collaborative online project-based learning. (Contains 21 references.) (Author)

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A Case Study for Promoting Collaboration on Online Project-Based Learning

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Abstract: The interactive mechanism of the internet allows learners to interact with teachers, other learners, and contents while it facilitates teachers to interact not only with learners but also with other teachers who teach the similar or related courses and conduct online teaching. The study attempts to analyze teaching strategies for planning collaborative learning and teaching through a case of online project-based learning in inter-universities. The study also attempts to observe the degree of students' learning experience, collaboration and participation with their expectancy and satisfactions on the collaborative online project-based learning.

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1. Introduction

In last several years, online education has become an accepted means of teaching and learning in higher educational institutions, and more and more universities use computers to improve learning and instruction by connecting to the resources and by communicating with others. The interactive mechanism of the internet and the Web allows teachers and students to share ideas and to access information and resources with a much broader community than would otherwise be possible. Through the Web learners can interact with teachers, other learners, and contents more actively and effectively. As the same manner, this interactive mechanism encourages teachers to interact not only with learners but also with other teachers who teach the similar or related courses and conduct online teaching. This collaborative interactivity of teachers with the internet can be taken place between or among universities in the mode of intra or inter-universities by sharing ideas in preparing courses, developing course materials, and operating, managing, and evaluating courses.

This collaborative way of teaching would improve the quality of teaching and learning and consequently expand new opportunities of education. When the Web extends learning beyond classroom walls to learning communities, the students can work in inter-group as well as intra-group, and the roles and concepts of teaching and learning are restructured. According to Pea (1994), there are two alternatives to the transmission model of communication. Teachers and students alike are transformed as learners by the process of communication. Through such collaborative discourse within the learning community, active leaning occurs more and knowledge is constructed through more interactions.

The interactions can be actively employed especially in the project-based learning activities by formulating an efficient communication system for group interaction, since project-based learning requires interaction among other students in order to accomplish the group project. In the project-based learning, learners generally involve in identifying the problem and information they need, locating corresponding information needs, and extracting and organizing relevant information from a variety of sources into productive uses through group communications and activities. On the same time, teachers engage in planning a collaborative course by setting the topic of the project, designing the materials and learners' activity, and managing and evaluating learners' progress.

Based upon this assumption, this study attempts to analyze teaching strategies for designing and operating courses, methods for successful collaborative teaching in the Web environment, and suggest new potentials on the view of collaborative teaching, especially for project-based learning with the internet. Also, this study explores the issues in students' learning experience, collaboration and participation along with their expectancy and satisfactions on the collaborative online project through observing an electronic survey.

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2. Background of the Study

Structure of Interaction in Collaborative Learning and Teaching

In online learning environments there are usually three kinds of interactions that take place: learner-content interaction, learner-instructor interaction, and learner-learner interaction (Moore & Kearsely, 1996). Learner-content interaction is the interaction between the learner and the information presented that should lead to knowledge acquisition. This interaction relies on the knowledge base that the learner has built from prior learning experiences and on the ability of the learner to interact with the content presented. Learner-instructor interaction is a vertical interaction dependent upon the ability of the learner and the instructor to communicate. At this type of interaction, the instructors provide support, and encourage the learners. Learner-learner interaction is the horizontal interaction between learners. Students learn in a self-directed way, but at the same time they interact with other students by communicating information and ideas so as to increase their participation and enhance their motivation and learning.

These types of interactions in online learning environment are taken place by the instructors focusing on learners. However, for the sake of instructors the interactions can be made with other teachers or outside experts as well as with learners or a group of learners (Yang, 1999). Therefore, the forth type of interaction occurred in collaborative learning is the interaction between instructors. This allows learners to have interaction with not only learners in his/her schools but also learners in other schools or communities. The instructors are connected through shared teaching objectives or contents whereas the groups of learners are connected through the shared problem of the project.

When the collaborative teaching is conducted between instructors, more interactive collaboration has made in the whole teaching and managing process including planning, implementing, and evaluating. The collaborative teaching covered all types of interactions among students and instructors, instructor and instructor, and students and students. Teachers can share their syllabus, lectures, students' task, activity and practices, and students' progress on discussion.

Such a collaborative teaching is not happened before in traditional classrooms. General availability of multimedia and communication tools, such as e-mail, bulletin boards, conferencing systems, whiteboards, chat rooms, and videoconferencing make a great impact to educational curricula, learning materials and instructional practices and are adapted for collaborative learning and teaching. In addition, the learners in online learning environment have become more heterogeneous, and learners' social or cultural background and own interest are divergent so that they tend to receive information actively with more interaction and feedback.

Elements of Collaboration in Learning and Teaching on Project-Based Learning

Collaborative learning emphasizes the mutual engagement of learners in the learning process rather than on the sole efforts of individual to reach a common group goal. Therefore, on project-based learning the final products are evaluated based on collaboration and represent a synthesis of the whole. Some of the main advantages of collaborative learning are that it encourages active and constructive learning and encourages deep processing of information, as well as evoking critical thinking, reasoning and goal-based learning (Bernard et al., 2000). Collaborative learning requires less teacher-imposed goal structuring and includes the process of sharing the learning task, combining expertise, knowledge and skills to improve the quality of the learning process, building or consolidating a learning community (Slavin, 1995).

In a collaborative learning setting, the emphasis is placed on the interactions as common understandings are negotiated and developed across differences of knowledge, skills and attitudes. Motivation to participate and confidence, together play an equally important role if benefits are to merge from the experience. Moreover, participants need to assume a variety of functional roles as interchanges progress and involve question answering and explanations that are open to challenge and justification (Bernard et al., 2000). To conduct collaborative online learning successfully, it is crucial that the learner feels part of a

learning community where learner's contributions add to a common knowledge pool and where a community spirit is fostered through social interactions.

Problem Description

The objectives of the study are to identify instructional strategies and support system for project-based learning using the Web and to examine factors for collaborative teaching process. The study examines and exemplary case of more effective and efficient collaborative instructional methods in inter-universities. The process of online project includes not only the identification of the problem, the time of accessing information needed for the project problem, but also collaborative learning and teaching strategies such as preparing courses, creating social climate and sense of community, encouraging students collaboration, and using support mechanism. Accordingly, questions are asked in terms of how much the students learn from online experience, how well they collaborate and participate in the project, how much they are expected and satisfied at collaborative online project-based learning activities.

Learning Community and Environment

Students were junior majoring educational technology or curriculum education, and taking a distance education system and new media course. Students of two universities worked in small groups, and two universities located in 4 hours driving distance were involved in online project, sharing their knowledge and collaborating to perform context-dependent tasks.

The task was developing a model for distance learning, and it is loosely structured in individual activity. The instructors provided the topic upon which each group develop own specific model for distance education, monitored the pace of group task, provided the steps for successful completion, guided the enabling objectives for completing their final group report. Meanwhile, instructors did not interrupt discussion itself while providing supports and facilitating guide.

Students Survey and Analysis

The survey was held at the end of course and the survey was consisted of items including the followings:

- Did the collaborative online project experience enhance understanding of distance education?
- Were your communication skills improved by the collaborative online project learning?
- Were your problem-soling skills improved by the collaborative online project learning?
- Were collaboration well taken place through learning in your group?
- What was the most significant factor to interfere your collaboration?
- When collaboration was not occurred, how did you handle it?
- Did you participate actively in collaborative online project?
- Were you satisfied at participation of other members of your group?
- What did you expect of collaborative online project before it started?
- Do you want to take another online project course if you could?
- What mechanism did you use most for collaboration (e.g., bulletin board, chatting room, etc)?

Additionally, messages were analyzed based on the electronic bulletin board discussion in order to observe which students play leadership most and facilitate team project, monitor other students' thoughts and opinions, put together the process and results of collaboration work.

3. Teaching Strategies for Online Project-Based Learning

Some of strategies for online learning in general are reviewed with collaborative learning and teaching, especially in project-based learning settings. The process of project-based learning with the internet is generally composed of online questions and answers, online report, online discussion by using the bulletin board, e-mail, and newsgroup etc. In the project-based learning, the students learn by problem solving process based on the given problem of the project. For example, teaching strategies such as reflection and summary of what students earn from project, and small group activity in the class which

are often used in the traditional class can be more effectively occurred in online learning space when collaborative interaction mechanism are applied. Recently, educational environment and learning process are moved toward the performance centered evaluation, portfolio, cooperative learning task. Teaching methods and strategies for collaborative teaching between or among teachers in project-based learning through the Web were examined by some exemplary case studies. The based framework of teaching process is based upon previous research including Bernard et al. (2000).

Preparing courses

In online learning, students' data as like as traditional classroom settings can be collected by questionnaires, pre-tests through e-mail or electronic questionnaire. In collaborative teaching, it is crucial to plan collaboratively including class scheduling, students grouping, project topic, select of technologies for communication, and organization of the group and leaders. In online project-based learning, it is especially important to select project problem that reflects social issues or debates so that learners can start from the issues the discussion for identifying the problem, specifying the problem and find the solutions, and synthesizing the results of discussion and represent them effectively. Also, it is important for improving the collaboration between instructors to put agreed efforts on the whole process from planning instruction to evaluation. To receive and minimize differences between sites, the value or culture on each other's site should be considered in advance.

The methods of preparing the online courses are as follows: conducting a learning needs assessment, establishing learner profiles , organizing informal face-to-face or online "getting acquainted" activities, teaching and modeling collaborative behavior and skills that are expected of students, providing tutors and students with all technology training required , and scheduling the process and completion of project .

Creating a good social climate and sense of community

Developing and maintaining a positive social environment and creating a community of learners are considered to be essential. Learning collaboratively is basically a social process that must be encouraged and nurtured.

The methods of achieving the community are the follows: providing a social space in the conferencing system that allows for easy and free access to other students and the instructor, assigning students to collaborate, posting introductions, information folders, and other self revealing items like photos of participants, making the environment as democratic as possible to encourage the involvement of everyone, providing a restricted space that is unavailable to the instructor for students to converse among themselves , providing adequate levels of tutor support, initially, that gradually gives way to increased responsibility on the part of students, and arranging for at least one live meeting such as face-to-face group encounter for participants to get acquainted.

The advantage with using a face-to-face audience first is that the additional direct contact makes it easier to modify procedures and instructions than when it is done solely online for the first time. When the online students are taught through face-to-face at the same course, this can be more easily met. The effects of face-to-face group encounters are examined in inter-university project-based learning.

According to Harris (2001), virtual communities are no longer a place-based concept, but formed around issues of identity and shared values. Electronic personalities require internal dialogue, semblance of privacy, deal with emotions using text, and create mental pictures of others, and in online learning we need to personalize communications to create a sense of presence. Harris suggested he community-building steps as follows: define group's purpose, create distinctive gathering place, promote leadership, allow for range of member roles, create and facilitate subgroups, and allow members to resolve their own disputes

Encouraging collaboration

True collaboration can best be realized only when instructors view themselves as facilitators and guides rather than lectures or experts. The degree of instructor involvement is also an issue. As Brown and

Palinscar (1989) suggested "scaffolding", the tutor began by providing high levels of support to all groups and students, but as students started to demonstrate independence and cohesiveness, the tutor support was faded gradually.

The methods of encouraging collaboration are as follows: using small groups, using nickname for each group made by group members, selecting group leader and rotate leadership in turn, assuming instructor's role as a facilitator, modeling desired collaborative behavior, using facilitating techniques, substituting visual social cues with verbal cues, and promoting positive interdependence

In online collaborative learning, instructors use facilitating techniques such as 'weaving' to steer discussions and 'go around the circle' to ensure maximize student participation. Promoting positive interdependence among online team members reinforces collaborative online learning by introducing a legitimate need to collaborate. To give collective rewards and distributing needed resources across group members is fostering a healthy interdependence.

It is important for students to need to be prepared for a collaborative online experience because it is not assumed all learners possess the prerequisites for skilful collaboration. When messages are analyzed based on the electronic bulletin board discussion, some contend strong leadership, and facilitate the team project, monitor other students thoughts and opinions, put together the process and results of students.

Using support mechanism effectively

Land & Green (2000) pointed out the need for external support mechanisms that help learners develop strategies for effectively learning with project-based environments. Encouraging goal setting and reflection during the learning process is important. Supports of extensive teacher-student conversation in complex learning situations facilitate gradual changes in understanding.

The methods of using the support mechanism are as follows: matching medium to instructional objectives, using technology that is accessible to all participants, making use of internet features, e. g. discussion forums, chat rooms, etc, and using a metaphor that relates to learners' experience

The teachers provide the topic upon which each group develop own specific group task, monitor the pace of group task, provide the steps for successful completion, guide the enabling objectives for completing their final paper. Meantime, teachers do not interrupt discussion itself while providing supports and facilitating guide. Minimum support can be given as necessary in mechanically, individually by personal using e-mail to the learners those who do not participate well.

4. Results of Case Study and Conclusion

The students survey showed that their experience on collaborative online project would enhance understanding of distance education overall and provide adjustment skills in other collaborative works. The students responded that their communication skills and problem-solving skills were improved by the collaborative online project learning. More than 70% of students were satisfied at their active participation and other members' participation in groups. In open questions in the survey, students pointed out the factors that interfere their collaboration and the way they cope with them. In addition, the types of mechanism used most in online community were discussed.

Collaborative teaching with the internet, with its expanded interactions, has a great potential in designing and managing courses more effectively and efficiently than ever. The interactive mechanism of the internet and the Web allows teachers and students to share ideas and access information and resources with a much broader community. The interaction between instructors occurred in collaborative learning was emphasized in which instructors can have interactions with other teachers or outside experts as well as with learners or a group of learners while learners have interaction with not only learners in his/her schools but also learners in other schools or communities.

Strategies for online learning in general were analyzed with collaborative learning and teaching, specially applied to project-based learning settings including preparing courses, creating a good social climate and sense of community, encouraging collaboration, using of support mechanism. Furthermore, to identify the students' learning experience, their involvement in the process of collaboration and participation as well as students' expectations and satisfaction level, a survey was conducted at the end of the course and analyzed. The findings and results of study would provide implications for other settings and suggest for further studies.

As a conclusion, it is still difficult for teachers to construct a collaborative learning activity in online teaching because the web features was not developed collaborative teaching and the web itself do not support collaborative learning and teaching. Therefore, we need to refine collaborative teaching strategies for various situations, and by using technology support the process of collaborative learning and teaching.

References

Austin, A.E., & Baldwim, R. (1991). Collaboration in teaching. In *Faculty collaboration: Enhancing the quality of scholarship and teaching*, pp.35-45. ASHE-ERIC Higher Education Report No. 7.

Bernard, M.R., & et al. (2000). Collaborative online distance learning: Issues for future practice and research. *Distance Education, 21*(2), 260-277.

Bordia, P.(1997). Face-to-face versus computer-mediated communication: A synthesis of the experimental literature. *The Journal of Business, 34*(1), 99-120.

Brown, A.L. & Palincsar, A.S. (1989). Guided, cooperative learning and individual knoweldge acquisition. In L.B. Resnick (ed), Knowing, learning, and instruction: Essays in honor of Robert Glaser. Hillsdale, NJ: Erlbaum.

Chang, C. (2001). Refining collaborative learning strategies for reducing the technical requirements of web-based classroom management. *Innovations in Education and Teaching International, 38*(2), 133-143.

Chen, G., Liu, C., Ou, K., and Lin, M. (2000). Web learning portfolios: A tool for supporting performance awareness. *Innovations in Education and Teaching International, 38*(1), 19-30.

Collis, B. (1996). Supporting project-based collaborative learning via a World Wide Web environment. In Khan, B.H. (Ed.), *Web-based instruction*, pp.213-219. Englewood Cliffs, NJ: Educational Technology Publications.

Harasim, L., Hilts, S.R, Teles, L. & Turoff, M. (1995). *Learning networks: A field guide to teaching and learning online*. Cambridge, MA: MIT Press.

Harasim, L, & et al. (1996). Virtual U: A web-based system to support collaborative learning. In B.H. Khan (Ed.), *Web-based instruction*. Englewood Cliffs, NJ: Educational Technology Publications.

Harris, J.B. (1995). *Organizing and facilitating tele-collaborative projects*. http://www. gsn.org/ weblib/ harris.

Harris, J.B. (2001). *Community-buiding to successful online courses*. A special lecture at Sejong University.

Laffey, J., Tupper, T., Musser, D., & Wedman, J. (1998). A computer-mediated support system for project-based learning. *Educational Technology Research and Development, 46(1)*, 73-86.

Mark. M. (1990). The differentiation of instructional structures and effectiveness in distance education programs. In M.G. Moore (Ed.), *Contemporary issues in American distance education*. London: Pergamon.

Moore, M.G., & Kearsley, G. (1996). *Distance education: A systems view* Belmont, CA: Wadsworth Publishing Company.

Newell, W.H. (1994). Designing interdisciplinary courses. In J.T. Klein & W.G. Doty.(Eds.) *New directions for teaching and learning, No.5*, 35-51. San Francisco: Jossey-Bass Publishers.

Penuel. W.R. (1999). *Observing classroom processes in project-based learning using multimedia: A tool for evaluators*. The Secretary's Conference on Educational Technology-1999, Washington, D.C.

Russell, J.D., Reiser, R.A., Hruskocy, C., & Ruckdeschel, C. (1999). Strategies for teaching project-based courses. *Educational Technology, 39(2)*, 56-60.

Slavin, R.E. (1995). Cooperative learning. 2nd Ed Allyn & Bacon. Boston, MA.

Taplin, M.(2000). Problem-based learning in distance education: Practitioners beliefs about an action learning project. *Distance Education, 21*(2), 278-299.

Yang, Y. (1999). A study of collaborative teaching strategy and support method for project-based cyber instruction, *Journal of Educational Broadcasting, 5*(2), 111-130.

Yang, Y. (2001). *Collaborative teaching strategies for online project-based learning*. International Conference on Computers in Education/Schoolnet, Seoul, 3-12.

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